



ADDITIONAL INVESTIGATION
UNIFIRST CORPORATION
WOBBURN, MASSACHUSETTS

Wells 6+17
10.11
549644

The additional investigative tasks described below are based on the findings derived to date from the continuing investigation and discussions among UniFirst's technical consultants and the EPA. The tasks have been designed to fulfill the following objectives:

1. further investigate the nature and areal and vertical extent of ground water that bears dissolved constituents of the product; and
2. develop data for and design a cost effective remedy that will remove a substantial portion of the mass of product and effect ground-water gradient control such that ground water contaminated by the product and migrating off site is captured in the wells, withdrawn, treated as may be appropriate and discharged.

Perimeter Wells

Five deep (approximately 300 feet) multi-port ground-water sampling devices will be installed at the locations shown on the attached figure. The locations describe a rough arc in the vicinity of the distal edge of any suspected manifestations of ground-water contamination by compounds that have been found on site. Further, these locations are expected to be beyond any likely zone of free product migration. Sampling at distance and at depth will allow for interpretation of the areal and vertical extent of ground-water-borne compounds suspected to be migrating from the site, with minimal risk of drilling through free product. Generally, this array of wells will provide a dense network of sampling points that are: down or cross-gradient from UC8; topographically downslope; and at lower bedrock elevations.

A multi-port ground-water sampler will be installed at location A approximately 1000 feet due west of well UC8. This location is 300 feet west of EPA well S6 in which dissolved tetrachloroethene reportedly has been detected.

A multi-port ground-water sampler will be installed at location B adjacent to EPA wells S81, which are located 900 feet southwest and downgradient of well UC8. These wells comprise a nest of three; each of which has been reported to contain low levels of dissolved tetrachloroethene and 1,1,1, trichloroethane.

A multi-port ground-water sampler will be installed at location C adjacent to EPA wells S63, which are located 800 feet south-southwest and obliquely downgradient of well UC8. These wells comprise a nest of three; each of which has been reported to contain low levels of dissolved tetrachloroethene and inconsistently 1,1,1 trichloroethane.

A multi-port ground-water sampler will be installed at location D adjacent to well S69. This location is 1100 feet south of well UC8 and 400 feet south of W.R. Grace well G01. Well G01 is screened in shallow bedrock and has been reported to contain dissolved tetrachloroethene and 1,1,1, trichloroethane. Well S69 is screened in shallow bedrock and reportedly contains no dissolved volatile organic compounds.

A multi-port ground-water sampler will be installed at location E adjacent to wells S67, which are located 550 feet south of the W.R. Grace Cryovac Division plant and 1200 feet northeast and upgradient of the New England Plastics plant. The wells comprise a nest of three. The shallowest two wells of the nest reportedly contain low levels of 1,1,1 trichloroethane. It has been reported that tetrachloroethene has been unreliably detected once in the four reported sampling rounds at the method detection limit in the shallow well at S67.

Continued Sampling and Analyses at UC9 and UC10

Additional sampling of these deep multi-port devices is required to establish the vertical distribution of concentrations of dissolved compounds. This is essential because the borings were drilled with water and could not be purged upon completion in light of the proximity of UC9 to UC8 and the elevated concentrations encountered during drilling UC10. Purging may have further disturbed the ground-water system or accelerated migration of product or its dissolved constituents. The two month interval between installation of the wells and the proposed sampling may have provided sufficient time to allow stabilization of the ground-water system around the wells such that representative samples can now be obtained.

The rates of recovery of the various ports at UC9 and UC10 will be measured to determine the most transmissive zone(s) at depth. These zones will be candidate depths for screening in the proposed deep pumping well.

Pump Testing

The results of the perimeter-well installation, ground-water gradient measurements and ground-water quality data will provide the basis for selecting the areal and vertical placement of investigatory pumping wells. These wells will be nominally four-to-six-inch diameter wells into which appropriately sized pumps can be installed. It is currently anticipated that one or more of the shallow, large-diameter wells that will be installed pursuant to the Order will provide adequate shallow bedrock pumping-response

information. A deep pumping well will be located based on the results of the above described additional hydraulic and ground-water-quality testing of wells UC9 and 10. The results of these tests will indicate an appropriate depth of the screened interval.

Pumping from these wells in conjunction with measuring the effect on ground-water levels in other on- and off-site wells and changes in concentrations of compounds in the pumping wells' effluents should provide data sufficient for initial design of a ground-water recovery and treatment system that will be capable of controlling off-site migration of dissolved compounds and effect removal of a significant mass of the compounds.

Sampling and Analysis of New England Plastics Wells

It has been reported that low levels of dissolved tetrachloroethene and 1,1,1 trichloroethane have been detected in well No. 2 at the New England Plastics (NEP) plant. An earlier analysis of a sample from NEP well No. 1 reportedly manifested an unreliable concentration of tetrachloroethene near the detection limit of the method. In order to determine the vertical distribution of dissolved compounds at this location each of the three wells will be sampled at various depths. Since the wells are open to various depths (No. 1 - 358 feet; No. 2 - 500 feet; No. 3 - 940 feet) ground-water quality variations can be determined with depth by appropriately positioning a pump and sampling port at various depths within each well.

